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ABSTRACT

The status and use of microcomputers in Jackson and Josephine counties (Oregon) were assessed in a 1984 survey of 82 school buildings. The questionnaire used sought information on the number, make, model, and distribution of microcomputers; their locations and uses within schools; the status of curriculum and student use; the identity of experts; staff training; and planning status. Based on 80 responses (98%), findings indicate the presence of more than 600 microcomputers in the schools, with only one district reporting a district-wide computer plan. Approximately 20 makes and/or models were reported, and 39% of the microcomputers were located in computer laboratories. Almost half of the schools were introducing microcomputers at the kindergarten and first grade levels, and emphasis was on computer assisted instruction for drill and practice at all levels. Instruction about computers was predominantly informal at the elementary level, with such instruction at the secondary level more often organized, sequential, and regular. Computer literacy was a common aim, and professional development was extremely important, with 86% reporting computer inservice programs. Approaches to evaluating, acquiring, distributing, and storing software varied greatly, with respondents favoring the establishment of a Southern Oregon Computer Using Education group. A list of "computer experts" and a 19-item list of suggested readings are included. (LMM)

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SOUTHERN OREGON

RESEARCH AND DEVELOPMENT COMMITTEE

presents

Computers in the Schools of Jackson and Josephine Counties: A Report

by

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August 1984

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ACKNOWLEDGEMENTS

This study would not have been possible without the dedication and conscientious efforts of those professionals in each of the responding schools who accepted the tedious task of completing the survey instrument. They are appreciated.

The support of the entire SORD Committee, especially that of the Research Subcommittee, also made this study possible. It seems especially appropriate to recognize the efforts of Beth Gilman, chairperson of the subcommittee, and Chuck Clark, who invested much time and effort toward this study.

The dedication, hard work, and good judgment of Leslie Parr, Richard Miles, Georgina Seals, and Carol Watson contributed greatly to this project. Each went well beyond the normal call of duty expected of graduate students or teachers to make this study meaningful.

Support provided by the Curriculum Office, Jackson County E.S.D. has been significant. Without Jean Pope and her staff, this study would not have become a reality.

IN A NUTSHELL

FOR THE HEAVILY COMMITTED

1. There were 607 microcomputers in the schools of Jackson and Josephine Counties.

2. Forty-six percent of the microcomputers in Jackson and Josephine Counties were Apple; 21 percent were Commodores.

3. Approximately 20 makes and/or models were reported in the schools of Jackson and Josephine Counties.

4. Several districts reported more than six makes and/or models.

5. There were 232 microcomputers in the schools of Josephine County.

6. There were 375 microcomputers reported in the schools of Jackson County.

7. There were more microcomputers in the secondary than in the elementary schools across the two counties. Secondary schools accounted for 376 machines, and elementary schools accounted for 227 machines.

8. Apples are most popular at all levels.

9. Apples are more popular at elementary levels than at secondary.

10. The mix of machines across the two county region is similar to that reported in national studies.

11. More than 90 percent of the microcomputers in the schools of Jackson and Josephine Counties were placed for student access and use.

12. Thirty-nine percent of the computers in schools were in computer laboratories, 27 percent were in assigned classrooms, and 17 percent were rotated.

13. More than half of the reporting schools (80) have one or more staff members who own personal computers.

14. Fifteen teachers use their personal machines in the classroom with student contact.

15. Of a population of 429 teachers represented in responses about computer use, a striking 338 were instructional users.

16. Twenty-one schools were conducting computer instruction at the kindergarten and/or first grade levels.

17. Computer-assisted instruction (CAI) was reportedly used at all levels of schooling in mainstream and special education classrooms.

18. "Drill and practice" was reported to be the most common type of CAI.

19. Simulation games were important at the high school level.

20. Informal computer instruction was the dominant approach in elementary schools of the region, while secondary schools were more formal in approach.

21. The most common languages (other than BASIC) used at the elementary and junior high levels were LOGO and graphics. Senior high schools used PASCAL and graphics.

22. Only one district in the two-county region (12 districts represented) had a fully operational district-wide computer plan.

23. Most districts had some type of secondary curriculum in operation.

24. Elementary curricula varied from building to building, where present at all.

25. Eighty-six percent of the schools surveyed had staff members who had taken course work in computer programming and/or computer literacy.

26. The major goal of most district inservice programs was reported to be computer literacy and applications.

27. Virtually every respondent felt that a Computer Using Education (CUE) group in southern Oregon would provide a very effective basis for cooperative staff training and evaluation and development of software.

28. Most educators were concerned with the procurement, maintenance, repair, and application of computers--not with the questions of why they should or should not be used.

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INTRODUCTION

During the last ten years, microcomputers have moved from the edge of parent night activities in the public and private schools to a position near the center of all school gatherings. Why this elevation in status has occurred is not clear. Certainly, there is not an overwhelming quantity of research evidence in support of the computer as a sure-fire way of increasing student learning. In fact, professional opinions about almost every phase of "computers in education" are varied and often contradictory. Computers, however, are here--there will likely be more of them next year--and everyone seems to have questions about them. A critical examination of the questions reveals concerns with acquisition, maintenance, and application. Few questions focus upon why we should or should not be using computers in education. The very nature of these questions asked leaves little doubt about the continued presence of computers.

If one examines the history of twentieth century American education, a long list of fads may be quickly assembled. Perhaps the "computers in education" is another fad created by the consumer intellect, which is an essential ingredient of American free enterprise. Or hopefully, "computers in education" will revitalize

education for millions of American children. Only time, unbiased research, and good judgment exercised by people who care about children will tell.

LOCAL CONTEXT

In the fall of 1983, the Research Subcommittee of the Southern Oregon Research and Development Committee (SORD) made a decision to respond to ever-present national, regional, and local discussions about microcomputers in the schools. A gathering of two or more educators was certain to generate questions and reveal concerns about the status of computers in schools. As is often the case, educators in southern Oregon appeared to have access to more information about computers on the national scene than at the local or regional level. Everyone seemed interested, but there was no clear, comprehensive view of the status and uses of microcomputers across Jackson and Josephine Counties. SORD response was aimed at collecting, organizing, and sharing information that might produce better informed conversations and decisions about computers in our own schools.

PROBLEM

The problem of this study was to accurately assess "what is happening" in the school districts of Jackson and Josephine Counties as far as the status and uses of microcomputers are concerned. The problem did not seek to address questions of what should be done--only "what is happening" in the schools.

PROCEDURE

After deciding to address the problem, the Research Subcommittee of SORD began the task of designing a survey instrument that would seek relevant information. Because of the desired breadth of the survey, it seemed inevitable that a lengthy questionnaire would be necessary. Indeed, it proved to be five pages in length and somewhat complicated. It drew, however, a strong response.

The questionnaire was drafted in the fall of 1983, reviewed by the committee in December, and revised to final form in January and February of 1984. It was designed to address several categories of information, such as the number, make, model, and distribution of microcomputers; the locations and uses within schools; the status of curriculum and student use; the identity of experts; the training of staff; and the status of planning.

The instrument was printed and forwarded to 82 school buildings in Jackson and Josephine Counties in February 1984, with a cover letter directed to building principals. Responses were returned during March and April, and were compiled by the Curriculum Office of the Jackson County Educational Service District. In spite of the length and complexity of the survey instrument, 80 of the initial 82 questionnaires were returned for a 98 percent response rate. This strong response was probably due to the conscientiousness of district personnel, and the high interest given the topic by teachers and administrators of the region.

In the summer of 1984, a member of the Research Subcommittee of SORD and a team of five graduate students at Southern Oregon State College assumed the task of analyzing and interpreting compiled data. This team (all teachers in public schools of the area, as well as graduate students) sought to ferret out patterns of information that would be helpful in shaping the "big picture" regarding status and uses of computers in education across the two-county region. The present report resulted from this team effort.

LIMITATIONS OF THE STUDY

One of the peculiarities of research which uses surveys is that weaknesses in instrumentation or procedure are sometimes found

after the fact. This was certainly the case with the study reported here.

As the team of graduate students examined survey results, it became painfully clear that reliability of responses might have been sharply improved if terms had been defined for respondents. For example, terms such as computer expert, computer literacy, formal use, informal use, operate, etc. were found to have an extremely wide variety of interpretations. This was indicated by margin notes and conversations which were held with a limited number of respondents.

The problems of reliability were further compounded by the fact that positions, responsibilities, and actual computer experience of respondents varied greatly from building to building. In some cases, building principals provided answers, and in others the task was delegated to staff members.

Frequently, responses were not provided to specific sections of the instrument--often without explanation. The analyzing team sometimes felt that "what was not stated" might have had greater significance than the information provided.

It is important for the reader of this report to remember that the above problems have undoubtedly modified the findings of this study. Yet, the information presented does provide a better view of "what is happening" with computers in the schools of Jackson and Josephine Counties than has been available.

It should also be noted that the responses were made in February, March, and April of 1984 and considerable progress has been made in most districts since that time.

FINDINGS

Makes and Models: Two-County Region

The makes and models of microcomputers reported in the schools of Jackson and Josephine Counties are graphically presented in Figure I. While viewing this graph, one can easily become caught up in speculating about the reasons why some makes and models dominate. Does this configuration reflect marketing strategies of the various companies? Or are the relative durability, power, and flexibility of the product presented here? Do we see a profile reflecting costs and software availability? Could this be a profile of accidental events? What <u>really</u> motivates the buyers for schools to select one make or model over another? Is it slick advertising? Is it the personality of a sales representative? Is it the national television commercial?

Perhaps we see reflections of a carefully designed plan that considers the developmental needs of children and, finally, the interests and needs of instructional staffs.

For whatever reasons, the configuration in the two-county region is similar in some respects to that reported by a national

survey published in the April 1984 issue of Education Week. Across the nation, Apples accounted for approximately 50 percent of all microcomputers in schools, with Radio Shack and Commodore commanding 21 and 15 percent of the market, respectively.

As may be viewed in Figure I, 46 percent of the microcomputers in schools of our two-county region are Apples, while Commodore (Pet, VIC-20, and C-64) constitutes 21 percent. It is also striking to note in Figure I the broad range of makes and models that is reported in the two-county region. Whether this can be regarded as evidence of exploratory behavior aimed at finding the best tool for the job, or whether it indicates a plan to expose students and staffs to a variety of makes and models, is not clear. In any case, maintenance and repair for a wide array of makes and models must certainly create inefficiencies, particularly within single districts.

Makes and Models: Comparing Jackson County with Josephine County.

By viewing across Figures II, IIa, and IIb, the pattern of makes and models within each county may be seen and compared. The graphs presented in this report were generated by computer. Perhaps the reader would be better served by a single, composite graph, but our computer program had limitations; thus, the three related figures.

It is interesting to note that of the 232 machines in Josephine County (including District 7), Apple constituted only 33

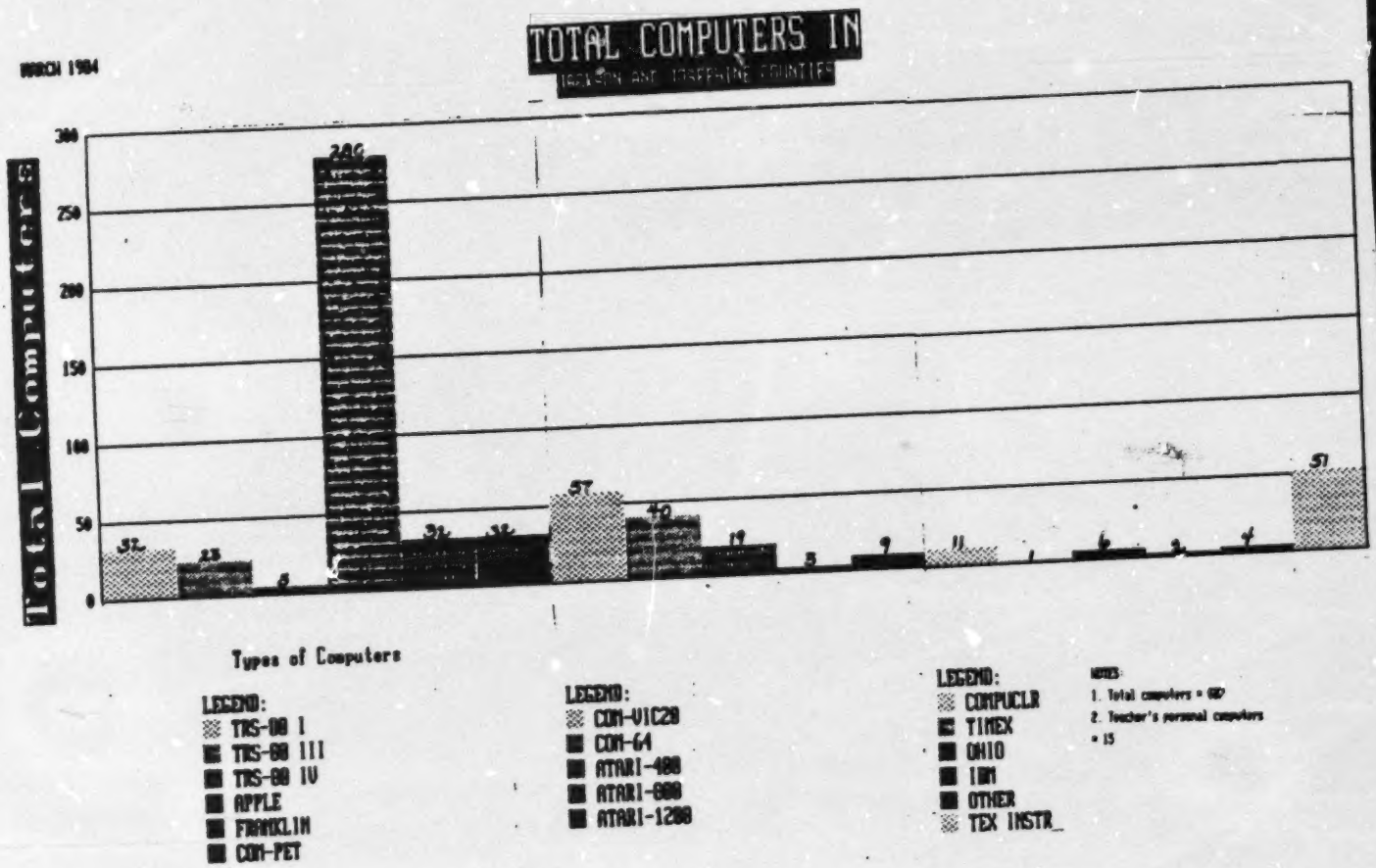

Figure I

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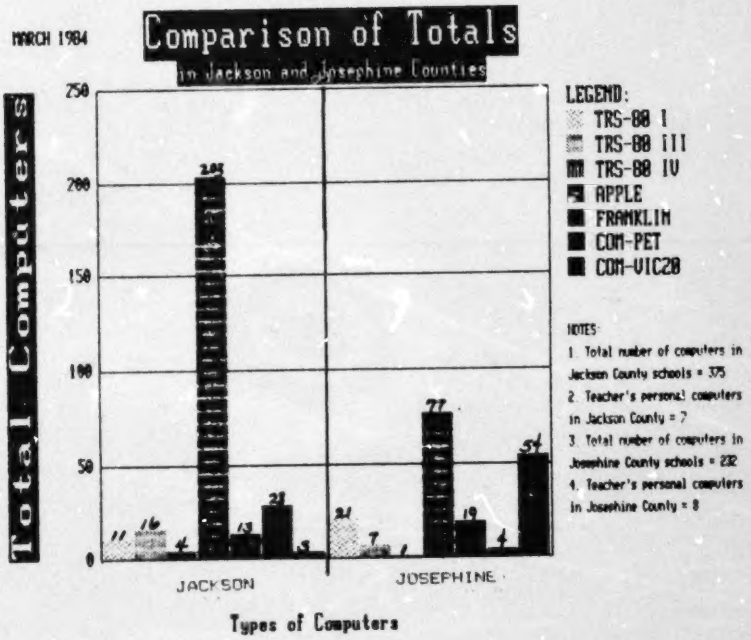
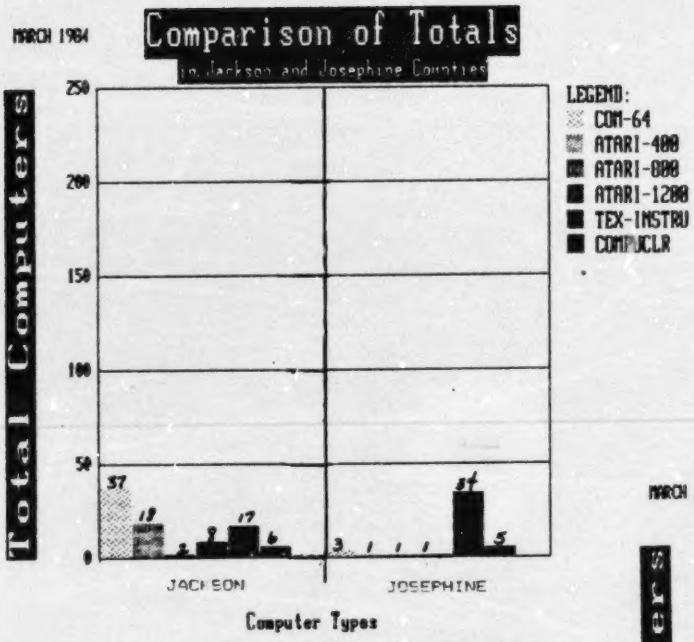
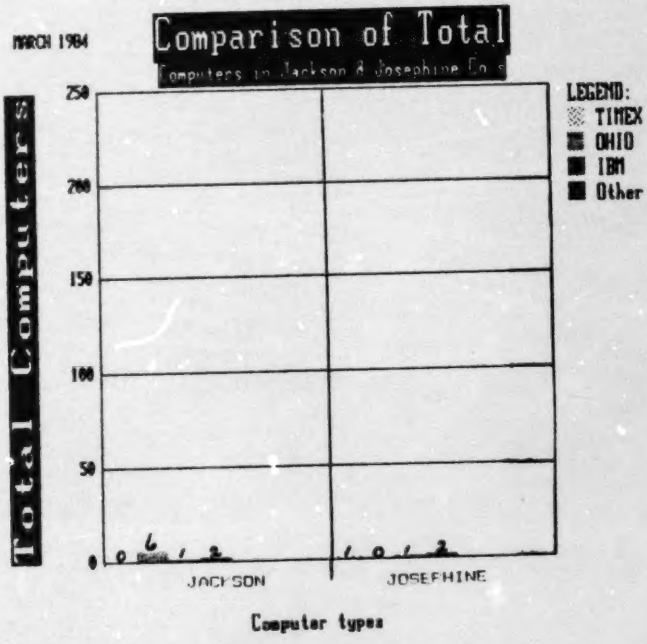
Figure II >





< Figure IIa.

Figure IIb.>



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percent of the total and Commodore accounted for 26 percent. This was in contrast to Jackson County where Apple carried 54 percent of the 375 computers, and Commodore captured only 18 percent of the total. It is worthy of note that Texas Instrument made a much stronger showing in Josephine County.

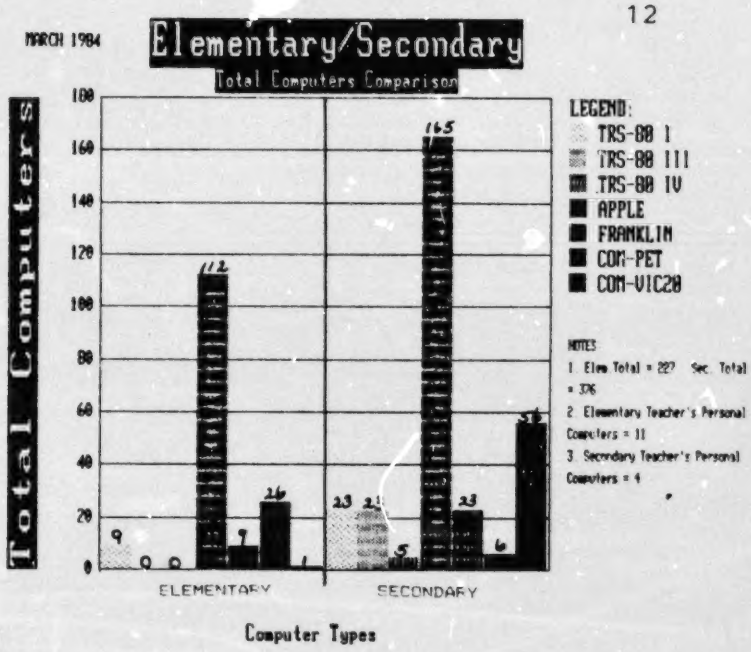
As previously suggested, the reasons for these contrasts may provide interesting conjecture, but will probably remain a mystery.

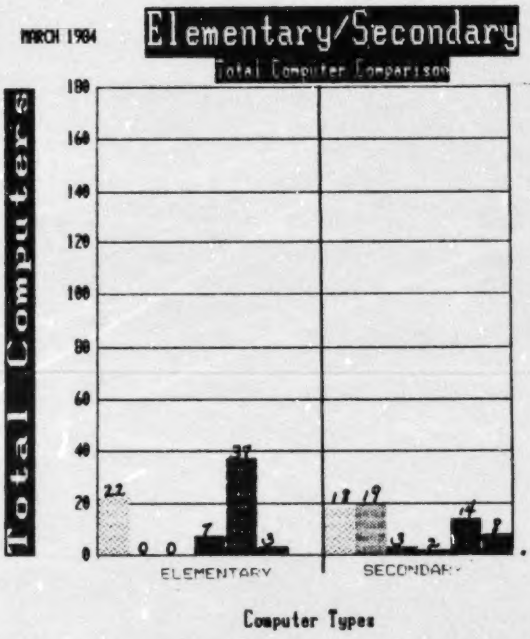
For a more detailed summary of the makes and models found in each school district, the reader may wish to see Table I. This information was included to help districts obtain reports about specific machines from users. It may also be noteworthy (since the information was reported in Table I) that fifteen teachers from the region have used their own personal computers in classrooms.

Makes and Models: Comparing Elementary Level with Secondary Level.

By examining Figures III, IIIa, and IIIb, the configuration of microcomputer makes and models in elementary schools of the two-county region may be compared with that of the secondary schools. As might be predicted, there are significantly more machines in the secondary schools (376 compared with 227). At the elementary level, 49 percent of the computers are reported to be Apples and 21 percent are Commodores. At the secondary level, Apple drops to 44 percent and Commodore remains at 21 percent. The shift in pattern from elementary to secondary is accounted for by an increase in the number of TRS-80 machines, from 4 percent at the elementary level to 14 percent at the secondary level.

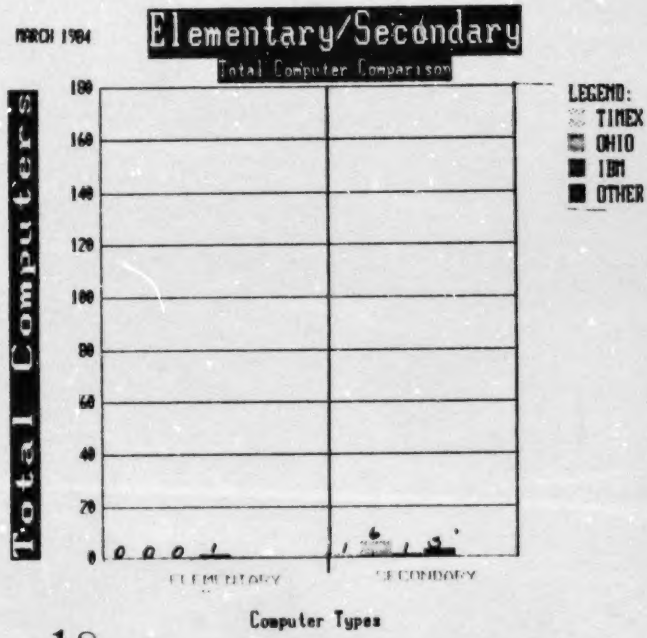
Figure III. >





< Figure IIIa.

Figure IIIb. >



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TOTAL COMPUTERS IN JACKSON & JOSEPHINE COUNTY BY SCHOOL DISTRICT

DISTRICT :	#4	#5	#6	#7	#9	#35	#40	#59	#91	#94	#549C	JO	TOTAL
COMPUTER													
TRS-80 I	5	1	1	5+1	0	2+1	0	0	0	0	2	16	32+2
TRS-80 III	12	0	2	3+1	0	2	0	0	0	0	0	4	23+1
TRS-80 IV	4	0	0	0	0	0	0	0	0	0	0	1	5
APPLE	10	29+1	23	26	61	7	2	2	4	2	47	51	280+1
FRANKLIN	0	0	0	18	0	1	0	0	0	0	12	1	32
COM-PET	0	3	14+1	0	11	0	0	0	0	0	0	4	32+1
COM-VIC20	3	0	0	0	0	0	0	0	0	0	0	54+3	57+3
COM-64	1	0	30+1	0	5	0	0	0	0	0	0	3+1	40+2
ATARI-400	0	0	0	1	0	18	0	0	0	0	0	0	19
ATARI-800	0	0	1	0	0	0	0	0	0	0	1	1	3
ATARI-1200	2	1	1	1	0	0	0	0	0	0	4	0	9
TEX INST	0	0	+1	1	0	1	3	0	0	0	13+1	33+2	51+4
COMPUCLR	0	0	+1	5	0	0	0	0	0	0	6	0	11+1
TIMEX	0	0	0	0	0	0	0	0	0	0	0	1	1
OHIO	0	0	0	0	0	0	0	0	0	0	6	0	6
IBM	0	0	0	1	1	0	0	0	0	0	0	0	2
OTHER	0	0	0	2	1	0	0	0	0	0	1	0	4
TOTALS	46	34	72	63	79	31	5	2	4	2	92	169	607
TEACHER'S	0	+1	+4	+2	0	+1	0	0	0	0	+1	+6	+15

ALSO ADDED TO TOTALS: SORD/CURR: 1 APPLE

SACRED HEART: 3 APPLES, 1 COM-64

ST. MARYS: 3 APPLES

(+) PERSONAL COMPUTERS BROUGHT TO SCHOOL BY TEACHERS

Table I.

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Physical Location of Computers in Schools.

Figure IV suggests that the most common physical location for microcomputers in schools of the region was the computer laboratory. Laboratories housed 39 percent of all microcomputers, while assigned classrooms accounted for 27 percent, and rotation of the machines through classrooms involved 17 percent of the total. It is commendable that more than 90 percent of all microcomputers in schools of the region were placed for student access and use.

At first glance, one might assume (from viewing Figure IV) that special education was slighted. When the actual number of special education classrooms and students is considered, however, another conclusion might be reached. Mainstreamed children from special education may also have access to microcomputers in mainstream classrooms.

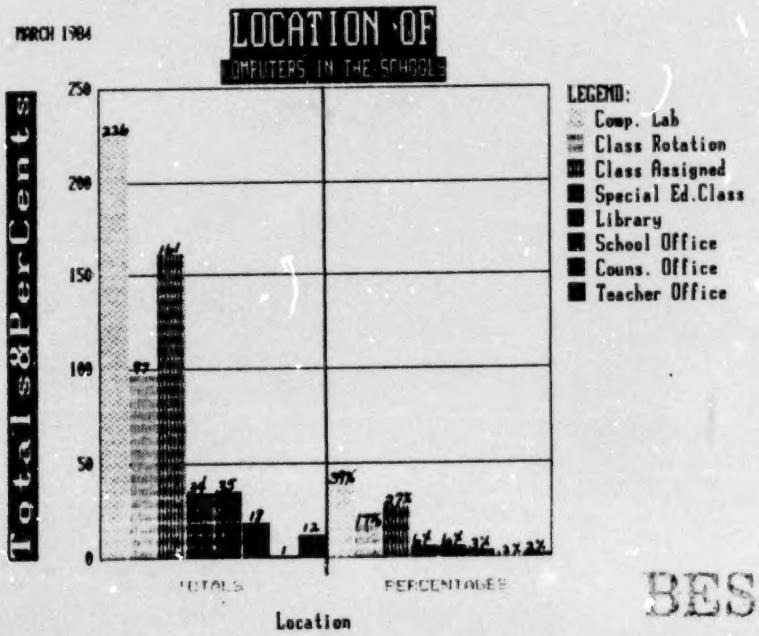

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Figure IV.

Staff Use of Microcomputers.

Of the 80 schools responding to the survey, 54 reported one or more teachers who personally own and operate computers. Fifteen of those teachers bring their computer to school for use by students. One school reported that fifteen teachers on staff own and operate computers.

Figure V suggests the major staff uses were reported to be in the instructional area, with a remarkable 333 instructional users from a reported population of 429 teachers.

A more vivid picture of what is meant by instructional uses may be gleaned from the following sections of the report on student computer use and curriculum.

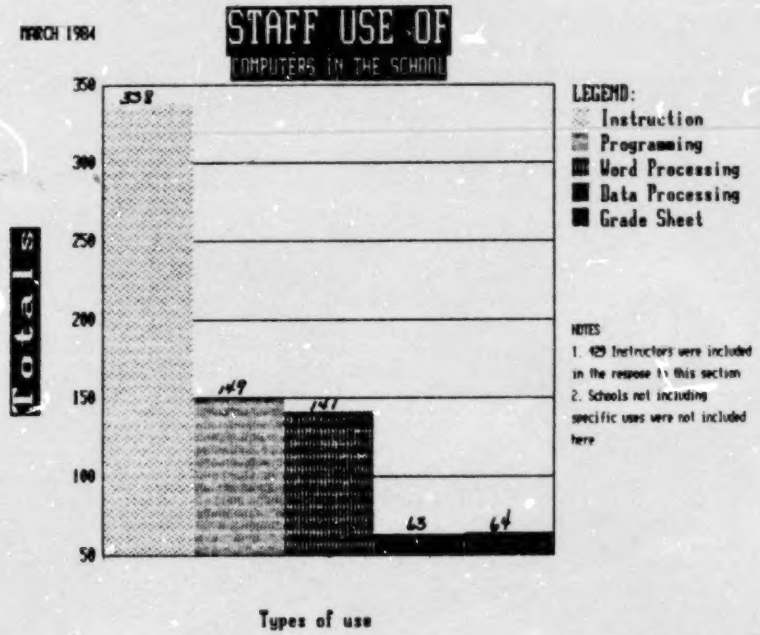

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Figure V.

Student Computer Use and Curriculum

Figure VI indicates that 21 of the 47 schools responding to this section of the survey were conducting computer instruction at kindergarten or first grade. The implications of this fact are potentially staggering for the curriculum, the teacher, and the budget. If the impact on learning is positive, higher student achievements and expectations must be taken into account by planning for these differences in subsequent grade levels. If the impact on learning is less predictable with some negative effects, this too must be considered in plans for the remaining grade levels.

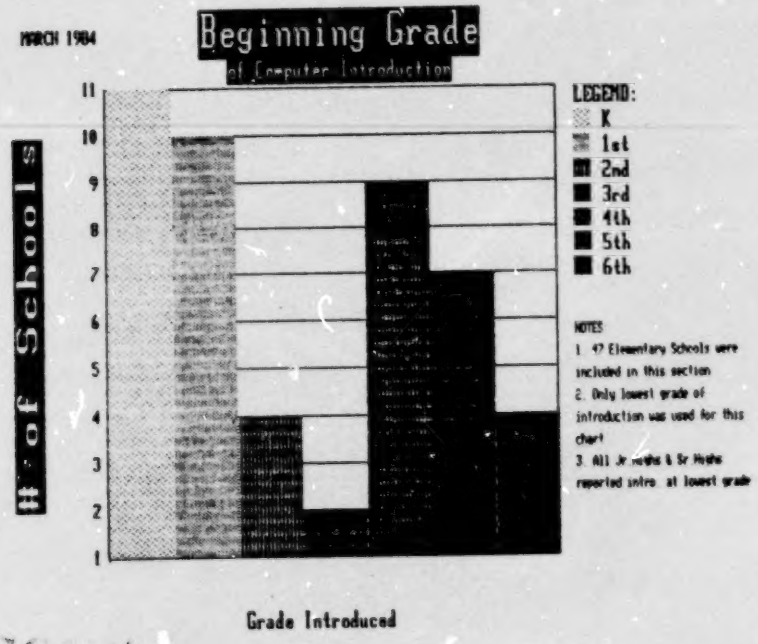
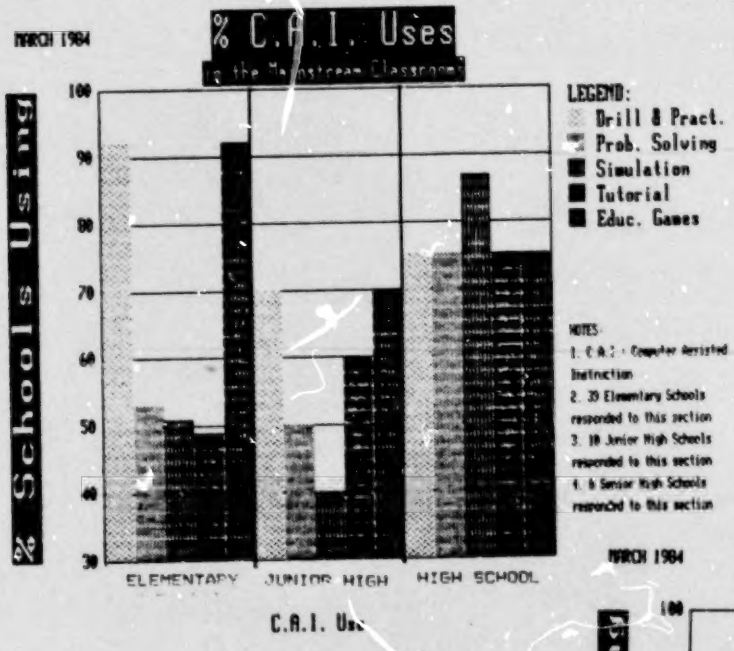


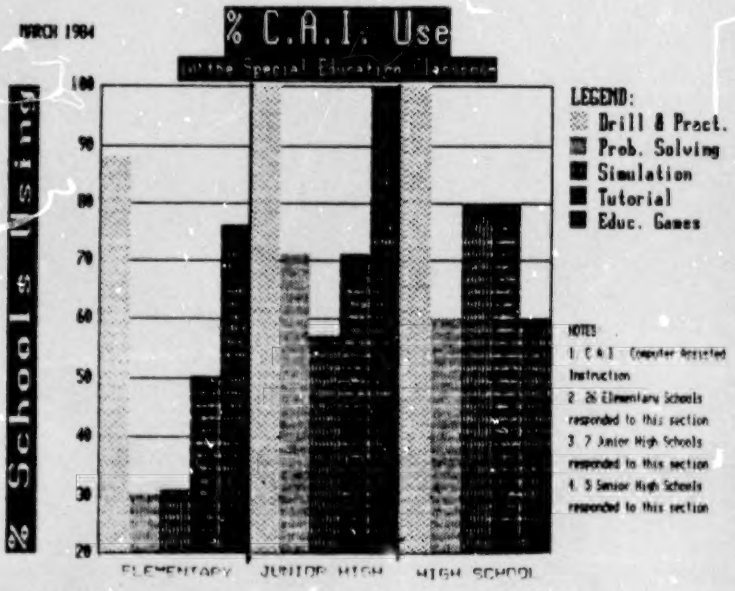
Figure VI.

Figures VII and VIII reveal that computer-assisted instruction (CAI) was reportedly used at all levels of schooling in both mainstream and special education classrooms. The most common uses of CAI at the elementary and junior high school levels were reported to be drill and practice, and educational games in both the mainstream and special education classrooms. CAI in the high schools focused mainly on simulation-type programs in the mainstream classrooms, and emphasized drill and practice, simulation, and tutorial uses in special education.



‹ Figure VII.

Figure VIII. ›



In view of the tremendous emphasis upon CAI for drill and practice, the critic might well question the cost of this activity since programmed texts, workbooks, and slide/cassette programs may achieve the same ends with less cost.

Of course, the motivational power of the computer is important and may be found to justify cost, even for drill. Certainly, the wise educator will examine this issue.

Figure IX seems to indicate that informal computer instruction was the dominant approach in elementary schools of the region. Since terms were not clearly defined, it is difficult to interpret the actual meaning of the response patterns. The team of analysts, however, assumes that informal instruction means that a precise scope and sequence does not exist, and instruction happens on an incidental basis. At the secondary level, instruction was reported to be more often organized, sequential, and regular. It is not clear whether these differences are appropriate to the unique needs of each level.

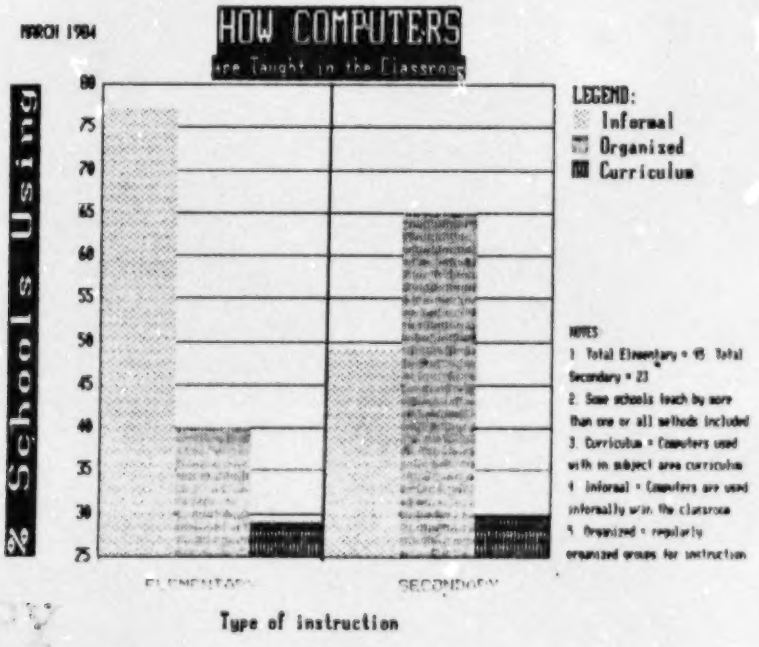


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Figure IX.

Figure X indicates a reported emphasis at all school levels on BASIC programming. This appears somewhat inconsistent with the already-reported informal approach to instruction (particularly at the elementary level) and the high emphasis upon drill and practice at all levels.

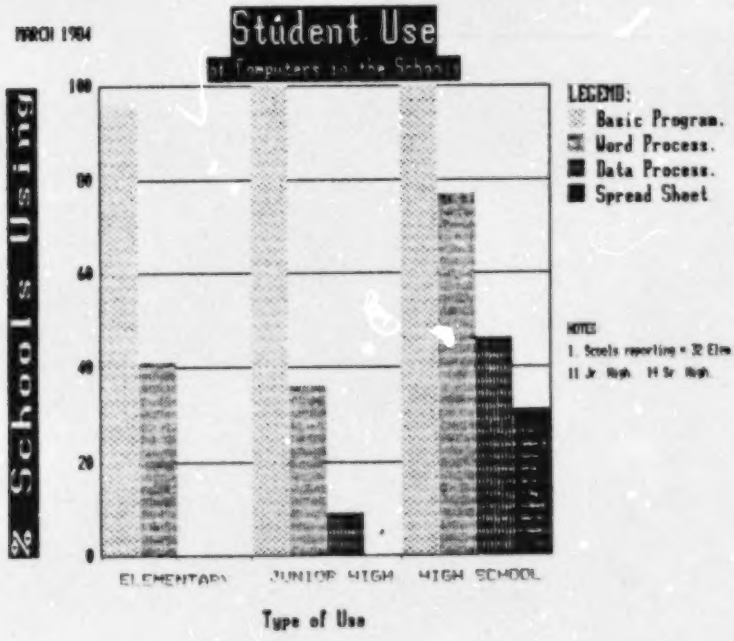

Figure X.

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As graphically illustrated in Figure XI, languages other than BASIC were being used to some extent. The most common ones reported in the elementary and junior high schools were LOGO and graphics. In the senior high schools, PASCAL and graphics were dominant.

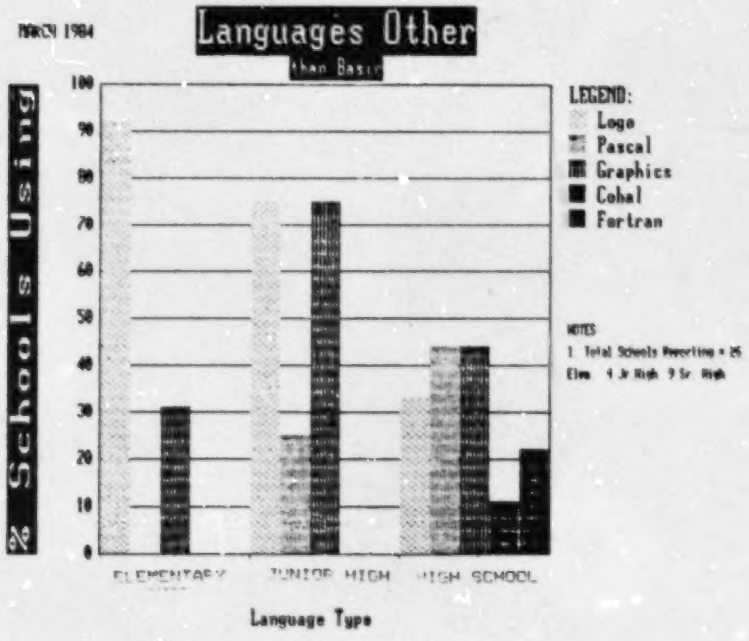

Figure XI.

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Computer curricula across the two-county region were reported to be in various st ages of development. One district reported a district-wide computer curriculum in place and fully functioning. A few districts were in the process of developing a district-wide plan, and almost all had some type of secondary curriculum in operation. At the elementary level, formal curricula often varied from building to building within districts. The following summary of responses to the survey provides a more detailed view of progress:

> The district reporting both an elementary and secondary computer curriculum in place was District 9.
>
> The districts having secondary curricula in place were Districts 5, 6, 7, 59, 549C, and Josephine County.
>
> District-wide programs were being developed in Districts 4 and 6.
>
> Secondary programs were being developed or rewritten in Districts 35, 91, and St. Marys.
>
> Independent elementary programs were in effect in District 549C's Kennedy and Griffin Creek Elementaries, and in Josephine County's Fruitdale and Williams Elementaries.
>
> Independent elementary programs were being developed in District 7's Redwood and Riverside Elementaries; District 549C's Hoover, Jacksonville, Roosevelt, and Ruch Elementaries; Murphy Elementary in Josephine County; and at Sacred Heart in Medford.

Professional Development.

Professional development encompassed two areas in the survey: actual computer literacy and programming classes, and in-service.

No distinction was made between computer programming course work and computer literacy course work.

Approximately 86 percent of the schools surveyed had staff members who had taken course work in computer programming and/or computer literacy. While the total number of staff members and/or hours of training varied from school to school, 86 percent of the responding schools answered positively to computer in-service programs for staff members. The major goals of in-service training were reported to be basic computer literacy and computer applications.

Questions raised by this section of the survey were numerous and may be the most important outcomes of this study. These will be presented in the final section of this paper, "Questions, Issues, and Conclusions."

Software.

From responses to the section of the survey dealing with software evaluation, acquisition, distribution, storage, and inservice, it appeared that methods were as varied and numerous as the respondent schools themselves. Evaluation techniques varied from giving the individual teacher responsibility, to assigning the task to a committee. There was some use of E.S.D.-purchased evaluations (such as E.P.I.E. review cards or journal reviews), and several schools were participating in district-wide evaluation and purchase plans. Some schools mentioned only purchasing software that offered a thirty day trial or delayed billing! This is very

limiting since many software dealers are reluctant to allow preview, due to the risk of "software pirating." This arrangement would likely impose serious limits upon curriculum development efforts.

The most promising suggestion for software evaluation appeared to be a region-wide (district- or E.S.D.-sponsored) system for generating, organizing, and dispersing evaluations. Sharing existing software and evaluations (formal or informal) would save significant funds and time. The initiation of a formal evaluation process would help assure wise planning and spending.

More suggestions for such a cooperative organization were extracted from surveys as follows:

> Evaluation and recommendation of software; i.e., which computer applications are appropriate; evaluation of educational software and its possible classroom use; best classroom computer time use; and ideas for using computers.
>
> Software library or exchange which would include previewed software; back-up disks; reviews by teachers, students, and manufacturers; list of software and resources available to the teacher; local software review agency.
>
> Centralized agency to order and review software.
>
> Computer literacy training for teachers and staff: i.e., in-service.
>
> Identify possible sources of funding for hardware and software to answer the need for more computers in the classroom. Possible membership in a consortium.
>
> Narrow the makes of machines in use in the districts.
>
> Guidelines for a literacy course for students; i.e., what should and what should not be covered.

The teaching of keyboarding skills to younger children.

A newsletter on LOGO.

Security of hardware; how to protect against energy surges.

Develop a software consortium similar to MECC (OECC/MECC).

QUESTIONS, ISSUES, AND CONCLUSIONS.

1. More than 600 microcomputers were reported in the schools of Jackson and Josephine Counties at the time of this survey. Only one school district reported a district-wide computer plan in place at that time.

   How could this number of machines be present without district-wide plans?

2. There were approximately twenty microcomputer makes and/or models reported across the two-county region. Several districts reported more than six makes and/or models.

   Why would such a range of configurations be found across the two-county region?

   Why would individual districts reflect such a broad spectrum of makes and/or models?

   - Was variety planned to meet specific needs within districts, or was this accidental?

- Would greater efficiencies be realized in repair, maintenance, and initial purchase if the range of makes and models was more modest?

- Would interdistrict and intradistrict cooperation produce greater efficiencies?

3. The pattern of makes and models varied slightly between elementary and secondary schools.

   Is this variation reflecting real differences in needs of the levels?

   Or is there a single pattern that would best fit the needs across all levels?

4. Thirty-nine percent of the microcomputers were reportedly located in computer laboratories.

   Is this arrangement most efficient and accessible for student use?

   Are the scheduled blocks of time in the laboratories compatible with the way students learn?

5. Almost half of the reporting schools are introducing children to microcomputers at the kindergarten and first grade levels.

   Are districts planning to meet the potential challenges that this innovation may be creating?

Can computers be introduced at one level and excluded at others without impacting student expectations and performance?

6. There appeared to be a tremendous emphasis upon computer-assisted instruction (CAI) for drill and practice at the elementary, junior high, and senior high school levels.

   Is this an efficient use of these costly machines?

   Are there other approaches to drill and practice that are more cost efficient?

   In view of the criticisms leveled at education for slighting problem solving and critical reasoning, are there more appropriate uses for computers?

   Who needs computers more--the gifted, average, or slow students?

7. Computer curricula, where present, appeared to be spotty, with little evidence of articulation across all levels. One exception was reported, and two additional districts were working toward a K-12 district-wide curriculum.

   Is an orderly, defined curriculum scope and sequence needed?

Without such a plan, can teachers cope with the tremendous range of differences that will result from incidental instruction?

8. Computer literacy for students and teachers appeared to be a common aim among reporting districts.

What constitutes computer literacy?

What skills (if any) should be required, and which languages should be emphasized? What skills and knowledges are required to integrate the use of computers across the curriculum?

Are educational games and simulations really of value?

9. Professional development was reported to be extremely important. Eighty-six percent of the reporting districts had staff members involved in some type of inservice with computers.

Who needs to be trained and to what degree?

Is it necessary for all teachers to be computer literate even though they are not "teaching computers?"

How should training come about?

Is in-district inservice sufficient or is transcripted course work needed?

Who should be trained in programming?

Is programming an extension of literacy?

10. Approaches to evaluating, acquiring, distributing, and storing software varied greatly across the two-county region. Virtually every respondent, however, favored the idea of establishing a Computer Using Education (CUE) group in southern Oregon.

    In this time of threatening budgets, would it not be prudent for the two-county educators to enter into such a cooperative arrangement?

11. Perhaps the most disturbing perception that emerged from the current study is the view that so few educators are asking <u>why computers are needed in education</u>. There seems to be a general assumption that they <u>are</u> needed and that we must continue to expand our holdings without a great amount of careful planning and thought.

    Is this an accurate perception?

PERSONS IDENTIFIED BY SCHOOL DISTRICTS

AS "COMPUTER EXPERTS" *

Abromaitis, Kris
Alexander, Don
Albano, Ron
Alvord, Pat
Amos, Bob
Austin, Linda
Backen, Judy
Baker, W.
Barlow, Tirzah
Bartlett, Pat
Bish, Dene
Bissett, Steve
Blount, Nancy
Brandy, Tim
Brewster, William
Bristol, Joani
Brown, Janie
Bunke, Betty
Burrell, Sheri
Burt, A.
Cannard, Mary Jo
Cantrell, Ken
Carlson, Larry
Carlton, J.
Christian, Barbara
Christensen, Jim
Clark, Chuck
Clement, Donna
Coleman, D.
Collier, J.
Cousineau, Lois
Craemer, Rhoda
Crosby, Brian
Crutsinger, Jay
Dais, Bob
Dawson, Jerry
Densmore, Joann
Draper, Ruth
Durbin, John
Denney, Harvey
Dwyer, George
Dwyer, Jack
Eames, Roy
Elliott, Judy
Ellsworth, J.
Erickson, Dianne
Evenson, Sally
Eyman, Jeff
Feller, Beth
Follett, Mary Jo
Fox, George
Frankel, Ed
Garrett, Keith
Gaty, Ted
Gaulke, Pat
Gertson, Glen
Gillette, Betty
Gillette, Clayton
Gmur, Jim
Goodrich, Vern
Graham, Judy
Harper, Jane
Harrington, Jim
Harvey, Bonnie
Hathaway, Allan
Hartwell, Mike
Hawkey, A.
Hedges, Meridel
Hitchcock, N.
Hills, Bryson
Hinds, Herb
Hoback, Linda
Hoffman, Diane
Holden, Ted
Howe, Shirley
Hughes, Cleo
Johnson, Terri
Jones, Gary
Jordan, Bruce
Keller, Jan
Keil, George
Kimball, Gerry
Knox, Dave
Koch, Nancy
Larson, Cherie
Leatherman, Sylvia
Leroy, Jim
Lindsay, Melinda

Lindsey, Rick
Loube, S.
Luce, Cindy
Manning, Lee
Marklin, Loran
Martin, Nick
Matheny, Bruce
McCollum, Lynn
McGuire, Kathy
McKay, Roberta
McMurtrey, Kathy
McNair, Don
Meyer, Peggy
Miles, Rich
Miller, Dave
Morris, Juanita
Mueller, Kathy
Nelson, Bruce
Nelson, Jean
Newman, Dick
Ogden, Chris
Oldenburg, Pat
Olson, Nancy
Ostaver, Goly
Pope, J.
Potter, Dave
Powell, Judy
Prinslow, Mike
Reich, Jay
Reisinger, Elaine
Renton, Midge
Rice, Marilyn
Riegel, Marlene
Ruegekm Narkebe
Ritchie, Mike
Rinderknecht, T.
Roberts, Jim
Robin, Larry
Robinson, Eleanor
Robinson, P.
Sabin, Donna
Sampson, Gary
Sandberg, Dale
Sanders, Vern
Sapp, Paula
Scharaga, Jim
Sessions, Pam
Sinkey, Laverne
Sipple, John
Sister Rosalie
Skibby, Jim
Smith, Emma
Smith, Lloyd
Sperbeck, Bonnie
Sparks, Jay
Sprott, Tom
Southwick, William
Staff, Laurie
Steiner, Mary
Stewart, J.
Stewert, M.
Stoddard, Grace
Sweem, Betty
Swisher, Steve
Tanner, Rick
Thomas, C.J.
Thompson, Shirley
Thornton, Larry
Tollefson, Ruth
Trippett, L.
Uhreen, Dave
Underhoff, Gary
Vinyard, Barbara
Wallingford, B.
Warmington, John
Ware, Peter
Wolcott, Bob
Widden, Tom
York, Geri

* For information as to school district or building, contact the Curriculum Office at Jackson County E.S.D., phone 776-8573.

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